CLAIMS

1. Method for the cogeneration of Heat and Power where, an independed from the heat consuming process Electricity Generating Device –EGD- e.g. a gas turbine or a recuperative gas turbine or a reciprocating engine etc. set – is connected with the process where the heat and the exhaust gases –not clean air- generated by the device is used and where EGD exhaust gases is used as oxidiser to burn additional fuel. The method is characterised by the increase of the EGD exhaust gases temperature by the cooling of the hot processed material or the hot exhaust gases generated in the heat consuming process -i.e. in the kiln or the furnace- before the EGD exhaust gases are used as oxidiser to burn additional fuel in the kiln(s) and the furnace(s) in e.g. the ceramics, heavy-clay, glass, metal/steel processing and cement industry where the material processed should be heated to temperatures which are considerably higher (say more than 150oC) than the temperature of the exhaust gases exiting the EGD.
2. A method as described in claim 1 which is characterised by the increase of the temperature of part or all of the EGD exhaust gases to a temperature higher than the one at the exit of the EGD, before they are used as oxidiser in the kiln, in a heat exchanging process in touch with the hot material exiting the firing zones of the process.
3. A method as described in claim 1 which is characterised by the increase of the temperature of part or all of the EGD exhaust gases to a temperature higher than the one at the exit of the gas-turbine set, before they are used as oxidiser in the kiln, in a heat exchanging process via a heat exchanger by the hot material exiting the firing zones of the process.
4. A method as described in claim 1 which is characterised by the increase of the temperature of part or all of the EGD exhaust gases to a temperature higher than the one at the exit of the EGD, before they are used as oxidiser in the kiln, in a heat exchanging or regenerating process by the hot exhaust gases exiting the firing zones of the process.
5. A method as described in claim 1 which is characterised by the upgrating of the

oxygen content of part or all of the EGD exhaust gases which are used as oxidiser, with pure oxygen or even air at various flow-rates and temperatures in order to achieve better combustion conditions.

6. A method as described in claim 1 which is characterised by the use of the EGD exhaust gases in an hybrid scheme i.e. part as oxidiser in the kiln and part for conventional heating purposes.
7. Burners which are suitable for applications in the industrial sectors described in claim 1 which are characterised by operating, because of the low shear rates used in the ignition regions of the burner, with lean oxygen oxidiser with an oxygen content as low as 10% weight.
8. A method as described in claim 1 where EGD exhaust gases are used as oxidiser either by small or by large burner(s) located at the heat consuming process.
9. A method as described in claim 1 and 8 where EGD exhaust gases are used as oxidiser in regenerative, radiant, porous, or flameless combustion processes and/or burners.
10. A method as described in claim 1 and 8 or 9 where EGD exhaust gases or a part of them are used as oxidiser indirectly i.e. not fed within the burners used in the process but directly into the kiln or the furnace chamber where all or part of the combustion takes place.